

**TAR SPRING CREEK BRIDGE ON BRANCH MILL ROAD  
BRIDGE REPLACEMENT PROJECT  
DIVERSION AND DEWATERING PLAN  
JUNE 2014**

The County of San Luis Obispo Public Work Department's Tar Spring Creek Bridge on Branch Mill Road Bridge Replacement Project ("Project") will require dewatering and diversion of Tar Spring Creek under the area of the work before and during construction activities. This Dewatering and Diversion Plan ("Plan") is conceptual and will be utilized by the regulatory agencies for permitting. The construction contractor will implement a diversion and dewatering plan that meets the intent of this Plan.

*Design*

USGS Stream Gauge 11141400 collected daily data for 12 years at the bridge location, from 1967 to 1979. The daily gauge data was analyzed for months that the stream diversion would be allowed, the months of June through October: the average of the mean daily flows over the 12 year period are less than 1 cfs, the maximum average of the mean daily flows corresponds to June 5 and is 0.92 cfs. Thus, on average flows of less than 1 cfs are highly likely during construction in the channel.

During June through October, 1967 to 1979, the highest mean daily flow that occurred at the bridge, occurred on June 5, 1978 and is 5.2 cfs. However, only during the two years of 1969 and 1978 did a maximum daily mean flow exceed 1.6 cfs.

The two 18-inch diameter diversion pipes are sized to accommodate flows as high as 11 cubic feet per second when the headwater ponds up to the barrel soffit, and as much as 14 cfs before overtopping. The pipes' capacity was calculated based on inlet control flow conditions.

*Installation of Diversion System*

The Project site will be isolated by use of diversion dams both up and downstream of the area under construction (see attached plan sheet DP-1). The dams will run bank to bank and be placed perpendicular to the direction of flow. The diversion dams will be installed to ensure the creek will not overtop or circumvent the dams. Should the diversion dams fail, the County will take immediate action to prevent adverse impacts to water quality and notify the Central Coast Water Quality Control Board ("Water Board") as soon as practicable and within 24 hours.

Dewatering the creek within the Project site will be done by stacking gravel bags to form a temporary stalwart dam upstream from the area to be dewatered. Heavy, impermeable plastic sheeting will help to seal the upstream dam's gravel bags. All joints between the impermeable plastic sheet and the flexible plastic pipe shall be sealed with commercial quality waterproof tape with minimum 4-inch lapping at the edges. The

creek will be diverted through the Project site by use of two 18-inch diameter flexible plastic pipes to maintain pre-construction stream flow downstream of the Project site.

The downstream diversion dam will be constructed similarly to the upstream dam, but not as stout. The downstream dam's primary purpose being to intercept minor sediment or suspended particles generated as the upstream diversion dam is deconstructed. During construction a dewatering pump will remove any water ending up between the two dams pumping it where it will not cause erosion. The downstream dam will be maintained until the water runs clear or to normal levels.

The invert elevation of the culverts will be installed on the natural streambed grade at both ends and matching the slope of the culverts to the streambed slope. Impervious plastic sheeting shall be placed on the streambed and stream banks prior to the placement of the pipe culverts and upstream diversion dam. The impervious plastic sheeting will then be wrapped over the diversion dam to help prevent stream water from soaking through.

In the event erosion occurs at the outlet of the diversion culvert, the County will confer with the Water Board to devise acceptable corrective actions.

Upon completion of construction activities requiring the diversion, any barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Except in the areas of the proposed rock slope protection, all temporarily disturbed areas within jurisdictional waters should be restored to pre-project conditions.

Work to remove the diversions will occur during low flows less than 1 cfs (being a few inches deep or less), a small portion of the upstream dam will be removed first, allowing water to flow into the restored channel and equilibrate to the downstream dam and pond, while the culverts continue flowing. Then the diversion culverts (one section at a time) will be removed, thereby allowing water to flow out of the culvert prior to removal from the channel. Lastly, the remaining portion of the downstream dam will be removed, including all plastic sheathing.

### Dewatering

Dewatering consists of removing accumulated stormwater and non-stormwater from excavations or from between the diversion dams. Along with the diversion and the control of the creek water, dewatering is essential to remove water seeping into the area, groundwater as well as water seeping through the diversion dams. A sump pump(s) may be needed to remove standing stormwater and non-stormwater from between diversion dams.

Dewatering measures and procedures will be dictated by site conditions; therefore, dewatering plans will be submitted as part of the SWPPP to detail the location of dewatering activities, equipment, and discharge point(s). Dewatering activities will be performed in conformance with the "Caltrans Field Guide for Construction Site Dewatering" to ensure that any dewatering discharge does not cause erosion, scour, or

sedimentary deposits that could impact water quality. Sediment control and other appropriate BMPs (e.g. outlet protection/energy dissipation, sediment trap, weir tank, gravity bag filter, sand media particulate filter, pressurized bag filter, silt catch basins, silt fencing, certified weed free straw bale dikes, or other siltation barriers) will be employed when water is discharged to prevent erosion at each discharge point.

Sump pump(s) will generally be located at a low point between the diversion dams to pump water to an upland location where it will be filtered and contained to ensure that no silt-laden water enters the creek. Intakes shall be completely screened with wire mesh no larger than 0.2-inch (0.5 mm) to prevent aquatic species from entering the pump system. All pumped water will either be settled or filtered prior to discharge back into Tar Spring Creek. The pump outlet will be relocated as needed to limit bank saturation and provide for proper sediment filtration prior to entering Tar Spring Creek.

Upon completion of dewatering activities, the County will remove all equipment and infrastructure associated with the dewatering in a manner that will not cause adverse impacts to water quality.

### Monitoring

Prior to implementation of the Plan, the County will conduct baseline sampling to determine natural turbidity and pH levels in Tar Spring Creek at the Project site.

The County will conduct daily monitoring and record keeping documentation of visible water characteristics (e.g., visible turbidity, sedimentation, and/or erosion) during dewatering/diversion implementation.

The County will conduct daily water quality sampling and record keeping documentation of the Tar Spring Creek downstream of the Project site for pH and turbidity during active dewatering. Where the natural turbidity of Tar Spring Creek is between 0 and 50 Nephelometric Turbidity Units (NTU), increases may not exceed 20 percent. Where the natural turbidity is between 50 and 100 NTU, increases may not exceed 10 NTU. Where the natural turbidity is greater than 100 NTU, increases may not exceed 10 percent. The pH levels of Tar Spring Creek may not drop below 6 or rise above 9. If sampling results indicate noncompliance with this Plan, then follow-up sampling of Tar Spring Creek upstream of the Project site will also be performed.

In the event the County discovers any adverse conditions that could potentially negatively impact water quality or if the turbidity and pH exceed the criteria described above, the County will take immediate corrective actions to prevent adverse impacts to Tar Spring Creek and notify the Water Board by telephone/fax as soon as practicable, but no later than within 24 hours.

The County will record the results of each daily visual monitoring, sampling of Tar Spring Creek, and any corrective actions taken.

### Reporting

Throughout the period of active dewatering/diversion, the County will submit to the Water Board weekly monitoring and maintenance reports. The County will submit the first report on the first Wednesday after the dewatering/diversion activities commence. The County will submit the last report the Wednesday after the dewatering/diversion activities are complete.

The weekly reports will include:

1. Time, date and location of dewatering/diversion and location of discharge(s).
2. Summary of daily visual monitoring and water sampling
3. Estimated volume of dewatering/diversion discharges;
4. Photographs; and
5. Maps.

V:\\_PROJECTS\WBS 300385 - Branch Mill Road @ Tar Springs Creek\Design\Diversion\Branch Mill Rd Bridge Dewatering & Diversion Plan  
- 10-2013.docx